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| 10/743,383 | 12/23/2003 | Yoshiaki Shimizu | 12073-0004 | 7926 |
| 22902 7590 11/14/2008 CLARK & BRODY 1090 VERMONT AVENUE, NW SUITE 250 WASHINGTON, DC 20005 | | | EXAMINER LAZORCIC, JASON L | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/743,383

Applicant(s)

SHIMIZU, YOSHIAKI

Examiner

JASON L. LAZORCIK

Art Unit

1791

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CIS)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1,3,6,7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US 6,386,001 B1).**

With respect to Claims 1 and 3, the instant reference teaches (Column 1, Lines 49-56, and Figure 30) a method for processing a glass preform which includes supporting said preform (106) on a glass working lathe (111) between a stationary chuck (114) and a movable chuck (116). Said lathe is provided with a burner (122) with flow rate control units which provide "flame controlled conditions (Column 32, Lines 1-5, and Column 31, Lines 14-28) by controlling the rate of gas flow of both a combustible gas and oxygen gas or "a supporting gas". The disclosure teaches that at least the outside (285) and inside pipes (286) of the burner are preferably fabricated from

stainless steel in order to minimize oxidative damage thereof (Column 37, lines 19-25). The lathe with burner is understood to process said preform under the flame controlled conditions provided by the burner.

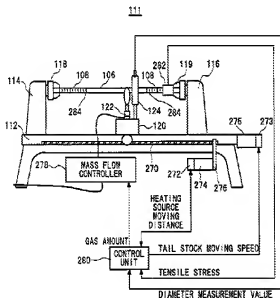
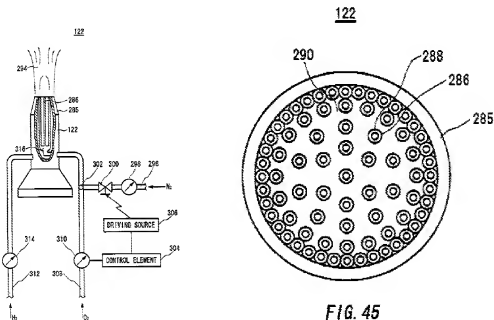


FIG. 30

Figures 44 and 45 display the detailed structure of the lathe burner. Figure 44 reveals that at least one group of discharge pipes (286) discharge the supporting gas, "O₂", from a common oxygen gas channel (308). The discharge pipes are arranged within a hollow cylinder or hollow body (285) which is open at the end proximal to the lead line 294 and closed at the end distal thereto.

The flammable gas, H₂, is understood to flow through the hollow body from the combustible gas channel (312). The reference discloses (Column 31, Lines 46-48) that the distribution pipes are placed or grouped around the center of the outside pipe in a

plurality of rows of concentric circles or “arranged within the hollow body (285) from a center towards an outer periphery”. Since the groups thus defined share a common central axis, the groups are considered to be co-axial. Therefore, each concentric circle of distribution pipes is understood to constitute one group (see dashed circles on annotated Fig 45 below) of the claimed co-axially classified plural groups. Taken collectively, these co-axially classified groups constitute the claimed “at least one group of discharge pipes”.



As depicted in Figure 45, all the co-axially classified groups are supplied with support gas through the single oxygen gas channel (308) and the flow through said channel is controlled by an oxygen gas flow rate control unit (310). Since the flow rate of the H_2 or “a gas” in the combustible gas channel (312) is separately controlled by the combustible gas flow rate control unit (314), gas flow through the plural groups of

coaxially classified discharge pipes is understood to be controllable with respect to a gas flow rate.

Claim analysis under 35 U.S.C. §112, sixth paragraph:

Claim 1, lines 11-12, has been amended to recite the limitation of a "control means for controlling a flow rate of gas to be passed therethrough". The instant limitation is deemed to pass the three prong test required for invocation of 35 U.S.C. §112, sixth paragraph as provided under MPEP §2181. It follows that the claim limitation is provided the broadest reasonable interpretation in light of and consistent with the written description of the invention Donaldson, 16 F.3d at 1194, 29 USPQ2d at 1850.

The "control means for controlling a flow rate of gas" is set forth in the Application Specification in ¶[0040]. In the instant passage, the Specification notes that "the respective control means may be made of any other means such a control valve connected to the control unit so far as the flow rate of a gas can be controlled". In view of the foregoing, the claimed control means at issue is not construed to be particularly limited any a specific structure(s) but is construed as open to any means which may successfully be employed to control a gas flow rate. Since the specification is not limited to a specific structure, for purposes of examination, the instant limitation are accorded the broadest reasonable interpretation consistent with Official policy and are not limited to "corresponding structure...and equivalents thereof".

With respect to Applicants newly submitted claim limitation, plural groups of discharge pipes (286) are provided within a hollow body (285). First end of gas feed line (312) is connected to the hollow body (285) while the first end of gas feed line (308) is connected to the plural groups (286). The second end of gas feed line (312) is connected to a source of flammable H₂ gas while the second end of gas feed line (308) is connected to a source of supporting O₂ gas. Gas feed line (312) is provided with a control means for controlling a flow rate of gas to be passed therethrough (314) and gas feed line (308) is similarly provided with a control means for controlling a flow rate of gas to be passed therethrough (310, 300, 298, and associated controls 304,306). The noted control means from the prior art are understood to read upon Applicants claimed control means since the noted flow control elements perform the function specified by the claim, namely control of a flow rate of gas, and said means are in no manner excluded by any explicit definition provided in the specification. Further, one of ordinary skill in the arts would reasonably have recognized the interchangeable nature of the prior art valve structures and control systems for that presently set forth in the claimed invention.

Regarding **Claim 6**, The prior art teaches that the heating power condition of the flame can be adjusted based on a diameter of the end-drawn region of the glass rod (Column 5, Lines 29-36) and that "the amount of gas supplied to the heating source (122) is set based on the measured diameter (Column 18, Lines 55-57).

With respect to **Claim 7**, prior art teaches that “the generation of a (gas) pulse caused by the opening and closing of the valve (300) can be prevented by setting a different linear speed value for the oxygen gas at the time of opening and closing of the valve (300)” (Column 33, lines 36-41). Where a gas pulse is understood as a “stepwise” change in the gas flow rate and the indicated prevention of the pulse results in a “gradual” change in gas flow rate, the immediate claim limitation “wherein the flow rates of the gases are changeable in a stepwise manner or gradually” is anticipated by prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (US 6,386,001 B1) as applied in the rejection of Claim 1 under 35 USC 102(b).

Shimizu teaches two separate configurations of discharge tubes (286) inside the hollow body (285) in figures 44 and 45.

Specifically, Figure 44 depicts a case wherein the plural groups of "co-axially classified" pipes number 2 (e.g. 1 central tube and 1 circle of peripheral tubes) while Figure 45 depicts a structure wherein the plural groups number 5 (1 central tube and 4 concentric rings of tubes). Shimizu fails to explicitly indicate that the number of plural groups should be exactly three (as set forth in claim 4) or exactly four (as set forth in claim 5).

Absent any compelling and substantially unexpected results to the contrary, it is the Examiners position that the claimed arrangement of 3 or 4 co-axial groups would have represented a merely trivial extension over the prior art teachings for one of ordinary skill in the art at the time of the invention. Specifically, Shimizu teaches the general burner structure as claimed by Applicant having preferred embodiments of 2 and 5 co-axial groups of pipes. Although said reference is silent regarding the particular pipe arrangement as presently claimed, it would have been obvious for one of ordinary skill to attempt the claimed pipe arrangement in an attempt to optimize the flame conditions since such arrangements are bracketed by the prior art preferred embodiments.

Response to Arguments

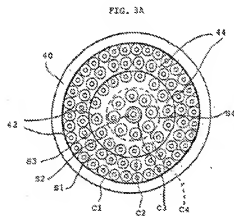
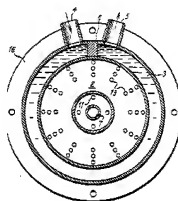
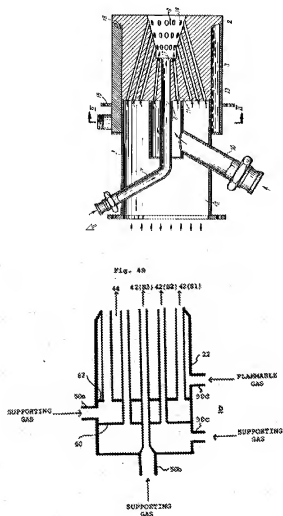
4. In view of Applicants amendments to independent claim 1, the rejection of claims under 35 U.S.C. §112, second paragraph has been withdrawn.
5. Applicant's arguments with respect to claims 1 and 3-7 have been considered but are moot in view of the new ground(s) of rejection. For the reasons set forth in detail above, the Shimizu disclosed apparatus and method are still deemed to be applicable under 35 U.S.C. §102(b). The rejection of claims under Shimizu stands as presented above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gitman (US 4,622,007) teaches a burner configuration wherein multiple concentric groups of controllable oxidant channels distribute oxidant to a fuel in a combustion process.

Although not necessary in the above rejection, the following excerpt images (Fig 1, top left, and Fig. 2, top right) from Gitman are provided to underscore the fact that burners presenting "at least one group of discharge pipes co-axially classified into plural groups" similar to applicants burner structures Figure 3A and Figure 4B (Bottom left and bottom right, respectively) have been well established through analogous prior art teachings. More specifically, it will be well appreciated from a reading of the Gitman reference (Figs 5, 6 and column 4, line 11 to Column 6, line 32) that it is known to provide independent control over the flow rate of combustible and carrier gases through each of these plural groups in order to control the nature of combustion in the resulting

burner flame. Gitman would have provided an obvious approach to optimizing the economical operation (see Column 1, lines 33-50) of the burner unit in the Shimizu process.



6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. LAZORCIK whose telephone number is (571)272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art
Unit 1791

JLL